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| EXAMINER | |
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**Please find below and/or attached an Office communication concerning this application or proceeding.**

The time period for reply, if any, is set in the attached communication.

| Office Action Summary | Application No. | Applicant(s) | |
|---|---|---|---|
| | 10/802,823 | SRIVASTAVA ET AL. | |
| | Examiner | Art Unit | |
| | Stephen L. Rawlings | 1643 | |

*-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --*

**Period for Reply**

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE *3* MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

**Status**

1)☒ Responsive to communication(s) filed on *03 December 2007*.

2a)☒ This action is **FINAL**. 2b)☐ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

**Disposition of Claims**

4)☐ Claim(s) *6-11 and 22-35* is/are pending in the application.

4a) Of the above claim(s) *6-11 and 31-35* is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) *22-30* is/are rejected.

7)☐ Claim(s) _____ is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

**Application Papers**

9)☒ The specification is objected to by the Examiner.

10)☒ The drawing(s) filed on *18 March 2004* is/are: a)☒ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☒ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

**Priority under 35 U.S.C. § 119**

12)☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☐ All b)☐ Some * c)☐ None of:

1.☐ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____.

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

**Attachment(s)**

1) ☒ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☒ Information Disclosure Statement(s) (PTO/SB/08) Paper No(s)/Mail Date *20071203*.
4) ☐ Interview Summary (PTO-413) Paper No(s)/Mail Date. _____ .
5) ☐ Notice of Informal Patent Application
6) ☒ Other: *See Continuation Sheet*.

Continuation of Attachment(s) 6). Other: copy of MTN Blot User Manual (Clontech).

## DETAILED ACTION

1. The amendment filed December 3, 2007, is acknowledged and has been entered. Claims 18-21 have been canceled. Claim 22 has been amended.

2. Claims 6-11 and 22-35 are pending in the application. Claims 6-11 and 31-35 have been withdrawn from further consideration pursuant to 37 CFR 1.142(b), as being drawn to a nonelected invention, there being no allowable generic or linking claim. Applicant timely traversed the restriction (election) requirement in the reply filed on March 7, 2007.

3. Claims 22-30 are currently under prosecution.

### *Information Disclosure Statement*

4. The information disclosure filed December 3, 2007, has been considered. An initialed copy is enclosed.

### *Oath/Declaration*

5. As previously noted, the oath or declaration is defective. A new oath or declaration in compliance with 37 C.F.R. § 1.67(a), along with the surcharge set forth in 37 C.F.R. § 1.16, is required. The new oath or declaration must properly identify the application of which it is to form a part, preferably by application number and filing date in the body of the oath or declaration. See M.P.E.P. §§ 602.01 and 602.02.

The oath or declaration is defective because:

As previously explained, this application presents a claim for subject matter not originally claimed or embraced in the statement of the invention. More particularly, this application presents claims to processes, which were not claimed or adequately embraced by the statement of the invention in the earlier filed applications to which this application is related to satisfy the requirements

set forth under 35 U.S.C. §§ 101 and/or 112, were the inventions to have been claimed in those prior applications. See 37 C.F.R. § 1.63.

The application should be redesignated as a continuation-in-part. See M.P.E.P. § 602.05(a).

Applicant has addressed this issue in the amendment filed December 3, 2007, but has not provided a new oath or declaration in compliance with 37 C.F.R. § 1.67(a) or redesignated this application a continuation-in-part of Application No. 09/534,072.

At, e.g., page 11 of the amendment, Applicant has argued that the specification, as filed, fully supports the claims in a context broader than the detection of cancer, citing in particular the disclosure of Example 7 as providing written support for the language of the claims. Applicant has noted that Example 7 describes the detection of PCGEM1 RNA in a biological sample by hybridization of PDGEM1 cDNA. In addition, Applicant has pointed to paragraphs [0048] and [0078]-[0082] of the published application[1] as providing additional support.

Applicant's arguments have been carefully considered but not found persuasive for the following reasons:

Example 7 at paragraphs [0121] and [0122] of the published application discloses the following:

> Multiple tissue Northern blots (Clontech, CA) conducted according to the manufacturer's directions revealed prostate tissue-specific expression of PCGEM1. Polyadenylate RNAs of 23 different human tissues (heart, brain, placenta, lung, liver skeletal muscle, kidney, pancreas, spleen, thymus, prostate, testis, ovary, small intestine, colon, peripheral blood, stomach, thyroid, spinal cord, lymph node, trachea, adrenal gland and bone marrow) were probed with the 530 base pair PCGEM1 cDNA fragment (nucleotides 410 to 940 of SEQ ID NO: 1). A 1.7 kilobase mRNA transcript hybridized to the PCGEM1 probe in prostate tissue (FIG. 6a). Hybridization was not observed in any of the other human tissues (FIG. 6a). Two independent experiments revealed identical results.
>
> Additional Northern blot analyses on an RNA master blot (Clontech, CA) conducted according to the manufacturer's directions confirm the prostate tissue specificity of the PCGEM1 gene (FIG. 6b). Northern blot analyses reveal that the prostate tissue specificity of PCGEM1 is comparable to the well known prostate

[1] U.S. Patent Application Publication No. 2004/0146932 A1.

> marker PSA (77 mer oligo probe) and far better than two other prostate specific genes PSMA (234 bp fragment from PCR product) and NKX3.1 (210 bp cDNA). For instance, PSMA is expressed in the brain (37) and in the duodenal mucosa and a subset of proximal renal tubules (38). While NKX3.1 exhibits high levels of expression in adult prostate, it is also expressed in lower levels in testis tissue and several other tissues (39).

Accordingly, this example describes a Northern blot analysis, which was performed using a commercially available prepared blot[2] comprised of polyadenylated RNA isolated from cells of a plurality of human tissues. The probe that was used in this analysis was a 530 bp fragment of a cDNA molecule having the nucleotide sequence of SEQ ID NO: 1, namely the fragment spanning residues 410-940).

The claims, as presently amended, are directed to a method of detecting a PCGEM1 nucleic acid in a biological sample comprising intact cells, said method comprising contacting the biological sample with any of a plurality of nucleic acid molecules comprising at least 10 contiguous nucleotides of SEQ ID NO: 1 under hybridizing conditions and detecting hybridization between the nucleic acid molecule and the PCGEM1 nucleic acid in the biological sample.

Claim 23 recites that the process further comprises a step of amplifying the PCGEM1 nucleic acid before contacting the biological sample with the nucleic acid molecule.

The sample according to claim 24, for example, is blood, urine, or prostate tissue.

Comparing the breadth of the claims, then, to the breadth of the disclosure set forth in Example 7 at paragraphs [0121] and [0122], it is noted that, whereas the claims are directed to *any* process, which comprises the steps of contacting a biological sample with a nucleic acid molecule comprising at least 10 contiguous nucleotides of SEQ ID NO: 1 under hybridizing conditions and detecting hybridization between the nucleic acid molecule and the PCGEM1 nucleic acid in

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[2] A description of a blot believed to be similar to, if not the same as that which was used is found on the Internet at http://www.clontech.com/products/detail.asp?tabno=2&product_id=10469. In addition, a description of the manufacturer's directions for use of such a blot is attached to this Office action.

the biological sample, the example describes only a single such process, namely a Northern blot analysis.

In addition, whereas the claims are directed to contacting the biological sample with *any of a plurality* of nucleic acid molecules comprising at least 10 contiguous nucleotides of SEQ ID NO: 1 under hybridizing conditions, the example describes only a single such nucleic acid molecule used to contact the biological samples, namely a 530 bp fragment spanning residues 410-940 of a cDNA molecule having the nucleotide sequence of SEQ ID NO: 1.

Although the claims are directed to a process for detecting a PCGEM1 nucleic acid molecule in a sample *comprising intact cells*, the example describes only a Northern blot analysis, which was performed using a commercially available prepared blot comprised of polyadenylated RNA isolated from cells of a plurality of human tissues – not a sample comprised of intact cells.

Although the claims are directed to a process for detecting a PCGEM1 nucleic acid molecule in any of a plurality of biological samples comprising intact cells, and particularly blood, urine, or prostate tissue, the example only describes an analysis of the tissue specificity of the expression of gene encoding PCGEM1 using a blot prepared from cells isolated from certain tissues, namely heart, brain, placenta, lung, liver skeletal muscle, kidney, pancreas, spleen, thymus, prostate, testis, ovary, small intestine, colon, peripheral blood, stomach, thyroid, spinal cord, lymph node, trachea, adrenal gland and bone marrow. Urine is not a tissue, and an analysis of a sample of urine is not described in the example.

Although the claims are directed to a process further comprising a step of amplifying the PCGEM1 nucleic acid before contacting the biological sample with the nucleic acid molecule, the example describes no such step.

Having made such comparison, it is apparent that the breadth of the claims and the breadth of the disclosure set forth as Example 7 differ markedly.

Turning, then, to the disclosures at paragraphs [0048] and [0078]-[0082] of the published application, which Applicant has argued provide additional support for the language of the claims, it is aptly noted that these paragraphs describe

either the nucleic acid, which is regarded as the invention (i.e., a "PCGEM1" nucleic acid molecule) (paragraph [0048]) or probes and primers, which are fragments of a "PCGEM1" nucleic acid molecule (paragraphs [0078]-[0082]); and the only disclosures in which the probe or primer described in paragraphs [0078]-[0082] is mentioned otherwise pertain to the subject matter of non-elected inventions.

Neither of the disclosures at paragraphs [0048] and [0078]-[0082] could be reasonably argued to provide written support for the language of the claims alone, as neither describes the claimed process; and moreover, it is evident that these disclosures are intended to describe the materials that are used, not in the practice the claimed process, per se, but rather in practicing the inventions, which are the subject matter of non-elected inventions[3], such as the claimed method of detecting prostate cancer.

It is for these reasons it has been submitted that the specification, as filed, fails to provide proper antecedent basis for the claimed subject matter.

Again, although the disclosure of the invention describes "detecting a PCGEM1-derived marker of prostate cancer by hybridization with an oligonucleotide probe" (paragraph [0060] of the published application) and "a method of detecting prostate cancer in a patient, which comprises (a) detecting PCGEM1 mRNA in a biological sample from the patient; and (b) correlating the amount of PCGEM1 mRNA in the sample with the presence of prostate cancer in the patient" (paragraph [0071] of the published application), the breadth of meaning and circumstance of such disclosures is not reasonably commensurate in breadth with that of the language of the claims; and moreover, it appears that there is no description of the claimed method, which more broadly encompasses *any* process that involves, or comprises the active step of detecting a PCGEM1 nucleic acid in a biological sample.

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[3] See, e.g., paragraphs [0058]-[0069], describing the use of a probe to detect a PCGEM1-derived marker of prostate cancer for the purpose of detecting, diagnosing, prognosticating the course of, or treating prostate cancer; and paragraph [0016], which describes the use of a probe or primer in a process for detecting prostate cancer cells in a biological sample.

Given such striking differences between the breadth of the claims and the breadth of any pertinent disclosures, it is apparent that the claims are not limited to the subject matter that has been adequately embraced by the statement of the invention.

Accordingly, it is submitted that the disclosure, as filed, does not provide properly clear and sufficient antecedent basis for the claimed processes.

Applicant is again reminded that M.P.E.P. § 608.01(o) states:

> While an applicant is not limited to the nomenclature used in the application as filed, he or she should make appropriate amendment of the specification whenever this nomenclature is departed from by amendment of the claims so as to have clear support or antecedent basis in the specification for the new terms appearing in the claims. This is necessary in order to insure certainty in construing the claims in the light of the specification, *Ex parte Kotler,* 1901 C.D. 62, 95 O.G. 2684 (Comm'r Pat. 1901). See 37 CFR 1.75, MPEP § 608.01(i) and § 1302.01.

M.P.E.P. § 608.01(o) further states that if the examiner determines that the claims presented do not comply with 37 CFR 1.75(d)(1), applicant will be required to make appropriate amendment to the description to provide clear support or antecedent basis for the terms appearing in the claims provided no new matter is introduced.

As previously explained, in this instance, it would *not* be clear from a reading of the descriptive portion of this application, alone, where there is clear support or antecedent basis for the language of the claims because apart from the description of a method of detecting prostate cancer in a patient, which method comprises the step of detecting a PCGEM1 nucleic acid in a biological sample, there is no other reference to this subject matter, which is the elected invention.

Furthermore, with particular regard to the dependent claims that are drawn to the subject matter that is the elected invention, although the specification describes nucleic acid molecules (probes) comprising nucleotide sequences of varying lengths, which comprise at least 10 contiguous nucleotides of SEQ ID NO: 1 (see, e.g., paragraph [0078] of the published application), *this disclosure is only fairly read in the context of a description of the non-elected invention*, i.e., a

method of detecting prostate cancer in a patient (see, e.g., paragraphs [0071] and [0072]). Similarly, while the specification describes a process comprising amplifying a PCGEM1 cDNA molecule, before incubating the PCGEM1 cDNA with the isolated nucleic acid of the invention and detecting hybridization between the PCGEM1 cDNA and the isolated nucleic acid, *it is again fairly read only the context of a description of this non-elected invention* (paragraph [0071] of the published application).

Accordingly, although Applicant's argument have been carefully considered, it is the position of the Office that this application presents claims to a processes, which were not claimed or adequately embraced by the statement of the invention in the earlier filed applications to which this application is related to satisfy the requirements set forth under 35 U.S.C. §§ 101 and/or 112, were the inventions to have been claimed in those prior applications.

Therefore, a new oath or declaration in compliance with 37 C.F.R. § 1.67(a), along with the surcharge set forth in 37 C.F.R. § 1.16, is required; and furthermore, this application should be redesignated as a continuation-in-part.

***Priority***

6. Applicant's claim under 35 U.S.C. §§ 119(e) and/or 120, 121, or 365(c) for benefit of the earlier filing date of non-provisional Application No. 09/534,072, filed March 24, 2000, which claims benefit of Provisional Application No. 60/126,469, filed March 26, 1999, is acknowledged.

However, Applicant has not complied with one or more conditions for receiving the benefit of an earlier filing date under 35 U.S.C. §§ 120 as follows:

The disclosure of the prior-filed application, Application No. 09/534,072, fails to provide adequate support or enablement in the manner provided by the first paragraph of 35 U.S.C. 112 for one or more claims of this application. More specifically, Application No. 09/534,072 fails to adequately describe the instantly claimed method of detecting a PCGEM1 nucleic acid in a biological sample.

Furthermore, claims 22-30 do not properly benefit under §§ 119 and/or 120 by the earlier filing dates of the priority documents claimed, since those claims are rejected under 35 U.S.C. § 112, first paragraph, as lacking adequate written description and a sufficiently enabling disclosure.

To receive benefit of the earlier filing date under §§ 119 and/or 120, the later-filed application must be an application for a patent for an invention which is also disclosed in the prior application (the parent or original nonprovisional application or provisional application); the disclosure of the invention in the parent application and in the later-filed application must be sufficient to comply with the requirements of the first paragraph of 35 U.S.C. 112. See *Transco Products, Inc. v. Performance Contracting, Inc.*, 38 F.3d 551, 32 USPQ2d 1077 (Fed. Cir. 1994). See M.P.E.P. § 201.11.

In addition, claims 22-30 do not properly benefit under §§ 119 and/or 120 by the earlier filing date of the provisional application because the claims are directed to a nucleic acid molecule comprising the nucleotide sequence of SEQ ID NO: 1, which is not described by the provisional application[4].

Beginning at page 16 of the amendment filed December 3, 2007, Applicant has argued to the contrary that the present claims have the benefit of the filing dates of the related applications.

Applicant's arguments have been carefully considered but not found persuasive. The reasons are set forth above in the paragraphs addressing these same remarks with respect to the defect of the present declaration.

Notably, Applicant has asserted that the provisional application describes a nucleic acid molecule comprising the nucleotide sequence of SEQ ID NO: 1.

However, as explained in the preceding Office action, it appears the provisional application describes another different nucleotide sequence, which differs from the nucleotide sequence of SEQ ID NO: 1 at position 302.

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[4] It appears the provisional application describes another nucleotide sequence that differs from the nucleotide sequence of SEQ ID NO: 1 at position 302.

Accordingly, although Applicant's arguments have been carefully considered, the effective filing date of the claims is deemed the filing date of the instant application, namely March 18, 2004.

***Grounds of Objection and Rejection Withdrawn***

7. Unless specifically reiterated below, Applicant's amendment and/or arguments filed December 3, 2007, have obviated or rendered moot the grounds of objection and rejection set forth in the previous Office action mailed June 4, 2007.

***Grounds of Objection Maintained***

***Specification***

8. The objection to the disclosure because the statement of continuity improperly indicates this application is a continuation of prior filed Application No. 09/534,072 is maintained. The specification and drawings filed in the continuation or divisional application contain no matter that would have been new matter in the prior application; yet, as explained in further detail below, this application presents claims to a processes, which were not claimed or adequately embraced by the statement of the invention in the earlier filed applications to which this application is related to satisfy the requirements set forth under 35 U.S.C. §§ 101 and/or 112, were the inventions to have been claimed in those prior applications. See M.P.E.P. §§ 201.06, 201.07, and 201.08.

This application should be redesignated as a continuation-in-part.

Applicant has traversed the propriety of maintaining this ground of objection at, e.g., page 11 of the amendment filed December 3, 2007.

Applicant's arguments have been carefully considered but not found persuasive. The reasons are set forth above in the paragraphs addressing these same remarks with respect to the defect of the present declaration.

9. The objection to the specification because the use of improperly demarcated trademarks is maintained. Although the use of trademarks is permissible in patent applications, the proprietary nature of the marks should be respected and every effort made to prevent their use in any manner that might adversely affect their validity as trademarks. See MPEP § 608.01(v).

Although Applicant may have made a *bona fide* attempt to resolve this deficiency by appropriately amending the specification, another example of such an improperly demarcated trademark appearing in the specification is Amplitaq Gold™; see, e.g., the specification at paragraph [0113] of the published application.

Appropriate correction is required. Each letter of a trademark should be capitalized or otherwise the trademark should be demarcated with the appropriate symbol indicating its proprietary nature (e.g., ™, ®), and accompanied by generic terminology. Applicants may identify trademarks using the "Trademark" search engine under "USPTO Search Collections" on the Internet at http://www.uspto.gov/web/menu/search.html.

10. The objection to the specification as failing to provide proper antecedent basis for the claimed subject matter is maintained. See 37 CFR 1.75(d)(1) and MPEP § 608.01(o). Correction of the following is required:

Claims 22-30 are drawn to a method of detecting a PCGEM1 nucleic acid in a biological sample [comprising intact cells][5], said method comprising combining the sample with a nucleic acid comprising at least 10 contiguous nucleotides of SEQ ID NO: 1 (claims 22 and 27-30), which method further comprises amplifying the PCGEM1 nucleic acid before said step of combining (claim 23), wherein the sample is blood, urine, or prostate tissue (claims 24-26).

The disclosure, as filed, does not provide properly clear and sufficient antecedent basis for the claimed processes.

[5] See the "new matter" rejection of the claims set forth below.

Applicant has traversed the propriety of maintaining this ground of objection at, e.g., page 11 of the amendment filed December 3, 2007.

Applicant's arguments have been carefully considered but not found persuasive. The reasons are set forth above in the paragraphs addressing these same remarks with respect to the defect of the present declaration.

Again, appropriate correction is required.

***Claim Rejections - 35 USC § 101***

11. 35 U.S.C. 101 reads as follows:

> Whoever invents or discovers any new and useful process, machine, manufacture, or composition of matter, or any new and useful improvement thereof, may obtain a patent therefor, subject to the conditions and requirements of this title.

12. The rejection of claims 22-30 under 35 U.S.C. 101 because the claimed invention is not supported by either a specific and substantial asserted utility or a well-established utility is maintained.

Beginning at page 11 of the amendment filed December 3, 2007, Applicant has traversed the propriety of maintaining this ground of rejection.

Applicant's arguments have been carefully considered but not found persuasive for the following reasons:

The considerations that are made in determining whether a claimed invention is supported by either a specific and substantial asserted utility or a well-established utility are outlined by the published Utility Examination Guidelines (Federal Register; Vol. 66, No. 4, January 5, 2001). A copy of this publication can be viewed or acquired on the Internet at the following address: http://www.gpoaccess.gov/.

Briefly, a "specific and substantial" asserted utility is an asserted utility that is specific to the particular nature and substance of the claimed subject matter, and which would be immediately available for application in a "real-world" context by virtue of the existing information disclosed in the specification and/or on the basis of knowledge imparted by the prior art, such that its use would not require

or constitute carrying out further research to identify or reasonably confirm its usefulness in this context. A "well-established" utility is a credible, specific, and substantial utility, which is well known, immediately apparent, and implied by the specification, and based on the disclosure of the properties of a material or subject matter, either alone or taken with the knowledge of one skilled in the art.

Claims 22-30 are drawn to a method of detecting a nucleic acid in a biological sample.

As discussed above, though these claims are deemed original claims, added by preliminary amendment filed on the same date as the application, they find inadequate antecedent basis in the disclosure of the invention.

The specification describes a process that *might* now be encompassed by the broader scope of the instant claims, but which is the subject matter of the non-elected invention encompassed by claims that have been withdrawn from further prosecution. According to claim 6 (withdrawn), this process, namely a method of detecting prostate cancer comprises the active step of detecting hybridization between a nucleic acid comprising at least 10 contiguous nucleotides of SEQ ID NO: 1 and a PCGEM1 nucleic acid molecule in a biological sample, which must effectively detect the presence of the latter in the sample.

The withdrawn claims directed to the non-elected invention find support in the disclosure of the invention at paragraph [0071] of the published application. Here, the specification discloses:

> The present invention provides a method of detecting prostate cancer in a patient, which comprises (a) detecting PCGEM1 mRNA in a biological sample from the patient; and (b) correlating the amount of PCGEM1 mRNA in the sample with the presence of prostate cancer in the patient. Detecting PCGEM1 mRNA in a biological sample may include: (a) isolating RNA from said biological sample; (b) amplifying a PCGEM1 cDNA molecule; (c) incubating the PCGEM1 cDNA with the isolated nucleic acid of the invention; and (d) detecting hybridization between the PCGEM1 cDNA and the isolated nucleic acid" [underlining added for emphasis].

However, the present claims are *not* directed to a method of detecting prostate cancer, which is instead the subject matter of a non-elected invention

claimed in this application; and it is only in this context of describing *the non-elected invention* that the disclosure might be interpreted as having provided a description, albeit too inadequate, of the more broadly claimed methods, which comprise the process steps recited in claims 22-30.

The present claims recite no intended use or purpose, apart from the detection of a nucleic acid in a biological sample, which amounts to no more than the acquisition of scientific data or information that might be used or applied in some specific and substantial manner, but which use or application is not part of the claimed invention. Still, because the claimed invention elicits no specific effect, nor has any particular function beyond the detection of a PCGEM1 nucleic acid in a biological sample, it is submitted that the disclosure thereof by the specification, as filed, would not make apparent *how* the invention is to be used in any manner that might be regarded both specific and substantial – if not as a mere active step, which is to be taken during the practice of the process of detecting prostate cancer, which is the subject matter of the non-elected invention.

Accordingly, it is the position of the Office that the claims are directed to an active step or perhaps a "research tool", rather than a useful process that is practiced to achieve any particular objective or purpose that might provide immediate benefit to the public.

Therefore, any presentation of the claims in a patent issued on the merit of those claims would amount to no more than a mere invitation to the artisan to elaborate or develop a useful process comprising the active step of detecting a PCGEM1 nucleic acid in a biological sample.

Inasmuch as the claimed invention has no requisite objective or purpose that might constitute a specific and substantial utility, such that it might be immediately practiced to the benefit to the public, the method of detecting a PCGEM1 nucleic acid in a biological sample, in and of itself, appears to have no asserted or well established utility; and the specificity and substantiality of its only

putative utility *as an integral and active step of any one objective process*, nor its credibility, can be assessed.

The U.S. Supreme Court addressed the issue of utility under 35 U.S.C. § 101 in deciding *Brenner, Comr. Pats. v. Manson,* 148 U.S.P.Q. 689 (US SupCt, 1966). The Court expressed the opinion that all chemical compounds are "useful" to the chemical arts *when this term is given its broadest interpretation*; nonetheless, the court held that this broad interpretation was not the intended definition of "useful" as it appears in 35 U.S.C. § 101, which requires that an invention must have either an immediately obvious or fully disclosed "real world" utility. The Court held that:

> The basic quid pro quo contemplated by the Constitution and the Congress for granting a patent monopoly is the benefit derived by the public from an invention with substantial utility. Unless and until a process is refined and developed to this point-where specific benefit exists in currently available form-there is insufficient justification for permitting an applicant to engross what may prove to be a broad field. Id., at 695.

Further, the Court opined,

> [W]e are [not] blind to the prospect that what now seems without "use" may tomorrow command the grateful attention of the public. But a patent is not a hunting license. It is not a reward for the search, but compensation for its successful conclusion. Id., at 696.

It is submitted the instant situation is directly analogous to that which was addressed by the Court in deciding *Brenner, Comr. Pats. v. Manson*, since hereto it might be said that all methods of detecting a nucleic acid in a biological sample are "useful" in the biochemical arts when the term is given its broadest interpretation, but nevertheless § 101 requires that an invention have either an immediately obvious or fully disclosed "real world" utility, which the claimed invention lacks because the specification does not disclose a currently available "real world" use for the claimed method of detecting a PCGEM1 nucleic acid in a biological sample.

To employ the disclosure of the claimed method of detecting a PCGEM1 nucleic acid in a biological sample in any useful process would require further research, which should be regarded as constituting part of the inventive process.

Because the specification does not disclose a currently available, "real world" use for the claimed invention, the requirements set forth under 35 U.S.C. § 101 have not been met.

To fulfill the requirements of § 101, the skilled artisan must be able to use a claimed invention in the manner asserted by Applicants' to provide some immediate benefit to the public. See *Nelson v. Bowler and Crossley*, 206 USPQ 881 (CCPA, 1980).

The existing information disclosed by Applicants' application would merely provide the artisan with an invitation to perform further investigations to discover how the claimed invention might be useful. Although such additional investigation might ultimately lead to a derivation of a specific benefit, an immediate benefit could not be derived from the use of the claimed invention because the existing information is insufficient to enable the artisan to use the claimed method of detecting a PCGEM1 nucleic acid in a biological sample in a specific, substantial and credible manner to provide an immediate benefit. Although the disclosure of the claimed polynucleotide might tomorrow command the grateful attention of the public, the Court has decided:

> [A] patent is not a hunting license. It is not a reward for the search, but compensation for its successful conclusion.

*Brenner, Comr. Pats. v. Manson,* 148 U.S.P.Q. 689 at 696 (US SupCt, 1966).

Applicant has argued that the specification specifically describes the use of the claimed process to detect a PCGEM1 nucleic acid "in any disorder mediated by defective or insufficient amounts of PCGEM1, not only prostate cancer" (page 12, paragraph 2).

The Examiner replies with the following queries: To what aim or purpose might the artisan detect a PCGEM1 in any disorder mediated by defective or insufficient amounts of PCGEM1, and which disorders are those?

It is submitted that the specification describes a process for detecting and/or diagnosing prostate cancer by detecting in a biological sample the presence of a PCGEM1 nucleic acid and then correlating the amount of the

nucleic acid in the sample and the presence of prostate cancer (see, e.g., claim 6), but this is the subject matter of a non-elected invention.

The claims currently under examination are directed to a process for detecting a PCGEM1 nucleic acid molecule in any of a plurality of biological samples comprising cells, not for detecting or diagnosing prostate cancer or any other disease or disorder.

Applicant has argued that the claimed process is used to detect a PCGEM1 nucleic acid molecule in any of a variety of biological sample comprising cells, which are presumably characteristic of any disorder mediated by defective or insufficient amounts of PCGEM1, but Applicant has not expressly stated the reasons that the artisan might do so.

Given the fact that the specification does not describe with any of the requisite clarity or particularity any of the disorders mediated by defective or insufficient amounts of PCGEM1, apart from prostate cancer, it is submitted that at best the disclosure would provide the artisan with a research tool by which one might endeavor to discover if, in fact, there are such other disorders. Certainly the artisan cannot know whether other disorders mediated by defective or insufficient amounts of PCGEM1 exist, or whether the claimed process might be useful in some "real world" context in perhaps detecting, diagnosing, or treating those disorders, which have yet to be discovered.

Why then might it be reasonably argued that the claimed invention has a specific and substantial asserted utility, or a well established utility as required under 35 U.S.C. § 101?

Contrary to Applicant's argument, the claimed invention does not have immediately obvious real world utility of detecting a specific, disease-associated nucleotide target – it is instead the subject matter of a non-elected invention that has such an asserted utility.

At page 12, paragraph 3, of the amendment Applicant has remarked that a nucleic acid molecule that serves as a marker for a disease has utility.

The utility of the disclosed nucleic acid molecule is not the issue; rather it is the utility of the claimed invention, namely the claimed process for detecting a PCGEM1 nucleic acid in a biological sample comprising intact cells. As explained, the specification asserts that it is useful to detect a PCGEM1 nucleic acid molecule in a sample, so as to detect and/or diagnose prostate cancer, but that is the subject matter of a non-elected invention. The instant claims, which as explained, are directed to a process that is not claimed or adequately embraced by the statement of the invention in either the instant disclosure or the earlier filed applications to which this application is related, might arguably encompass the subject matter of such a non-elected invention, but are actually far broader reaching. Though the process itself might ultimately find application in any number of different objective processes, such as the detection and diagnosis of some other disorder, yet to be discovered, which is mediated by defective or insufficient amounts of PCGEM1, as disclosed, the invention is now but a mere invitation to the artisan to develop such useful applications of the process. Moreover, the claimed process alone finds no specific and substantial, credible, and/or well established utility in the real world since it is only a tool by which any further objective application of that process might be elaborated.

Applicant further remarks by distinguishing the claimed invention from the invention considered by the Supreme Court in deciding *Brenner, Comr. Pats. v. Manson,* 148 U.S.P.Q. 689 (US SupCt, 1966).

In response to these remarks, it is not so relevant that types of inventions might differ, but instead that the Court expressed the opinion that, though all chemical compounds are "useful" to the chemical arts *when this term is given its broadest interpretation*, such broad interpretation of the term was not its intended definition as it appears in 35 U.S.C. § 101. Instead, Court opined that the statute requires that an invention must have either an immediately obvious or fully disclosed "real world" utility.

Again, though the claimed process itself might ultimately find application in any number of different objective processes, such as the detection and diagnosis

of some other disorder, yet to be discovered, which is mediated by defective or insufficient amounts of PCGEM1, as disclosed, it does not now have either an immediately obvious or fully disclosed "real world" utility, and its disclosure in this application represents a mere invitation to the artisan to develop such useful applications of the process.

Finally, Applicant has remarked that PCGEM1 nucleic acids have considerable practical use in the detection of diseases associated with the 2q32 region of chromosome 2, and detecting the nucleic acids provides immediate, real-world use.

In response, which diseases are those, if not prostate cancer? Again, the process for detecting prostate cancer is the subject matter of a non-elected invention. The instant claims directed to the elected invention are drawn to a process for detecting a PCGEM1 nucleic acid in any of a plurality of biological samples comprising intact cells; but its objective is unclear, if not to detect the presence of a PCGEM1 nucleic acid molecule in a biological sample in order to detect or diagnose prostate cancer. As claimed and disclosed, the process that is the elected invention does not now have either an immediately obvious or fully disclosed "real world" utility. Moreover, given the lack of clear and particular guidance and direction, the artisan would not know how to use that process in a manner that would immediately benefit the public by the achievement of some asserted practical objective, such as the detection and diagnosis of some other disease or disorder mediated by defective or insufficient amounts of PCGEM1, which has yet to be discovered. Consequently, it is submitted that the claimed process is at best a research tool, which might be used to discover and develop such practical applications that might entail the use of the invention.

***Claim Rejections - 35 USC § 112***

13. The following is a quotation of the second paragraph of 35 U.S.C. 112:

> The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

14. The rejection of claims 22-30 under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention, is maintained.

Beginning at page 15 of the amendment filed December 3, 2007, Applicant has traversed the propriety of maintaining this ground of rejection.

Applicant's arguments have been carefully considered but not found persuasive for the following reasons:

Many of the reasons are set forth above in the paragraphs addressing the failure of the claims to satisfy the utility requirement set forth under 35 U.S.C. § 101, but as previously explained, the claims are too vague and indefinite to satisfy the requirement for clarity and particularity set forth under 35 U.S.C. § 112, second paragraph.

The claims are directed to an omnibus subject matter, as in light of the disclosure they appear to be directed to a mere active step of which the disclosed process of detecting prostate cancer is comprised, and which is the subject matter of a non-elected invention, rather than a useful process having any one particular objective or purpose. Thus, at first glance, the claims are directed to a method of detecting a nucleic acid molecule that may conceivably be performed during any number of a vast plurality of objectively different processes.

The elected invention is a method of detecting a PCGEM1 nucleic acid in a biological sample, so the present claims are *not* directed to a method of detecting prostate cancer, which is instead the subject matter of a non-elected invention claimed in this application.

Yet, as explained above, it is only in the context of describing *the non-elected invention* that the disclosure might be interpreted as having provided a description, albeit too inadequate, of the more broadly claimed methods, which comprise the process steps recited in claims 22-30.

Moreover, inasmuch as the invention is disclosed to only this extent, the subject matter that is now claimed appears to be but a mere step in the originally

disclosed process of detecting prostate cancer, which was perhaps all that Applicant originally intended to disclose, since any other contemplated use for the invention cannot be gleaned from a reading of the disclosure. Therefore, even in light of the disclosure, it is submitted the claims fail to clearly and particularly delineate the metes and bounds of the subject matter that is actually regarded as the invention, so as to permit the skilled artisan to know or readily determine infringing subject matter.

What is the purpose or objective of practicing the invention? Why would the artisan use the invention to detect a PCGEM1 nucleic acid molecule in a biological sample? How is the scientific data or information procured by the practice of the invention necessarily used, if at all? If not a mere step in the disclosed process of detecting (diagnosing) prostate cancer, how else might Applicant intend the process, that is now claimed, be used?

To satisfy the requirement set forth under 35 U.S.C. § 112, second paragraph, the claims *must* define the metes and bounds of the subject matter that is regarded as the invention by Applicant with the clarity and particularity necessary to permit the skilled artisan to know or determine infringing subject matter.

At page 15, paragraph 2, Applicant has argued that the claims are directed to a method of detecting a marker for diseases associated with the 2q32 region of chromosome 2.

In response, contrary to Applicant's assertion, the claims are not directed to such subject matter; rather the claims are directed to a process for detecting a PCGEM1 nucleic acid in a biological sample comprising intact cells.

Applicant has further remarked the invention may be used to detect specific disease-associated nucleotide targets.

In response, the issue at hand is not how the invention might be used, but rather the claims clearly and particularly delineate the metes and bounds of the subject matter regarded as the invention, so as to permit the skilled artisan to

know or readily determine infringing subject matter, and satisfy the requirement so set forth under 35 U.S.C. § 112, second paragraph.

15. The additional rejection of claims 22-30 under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention, is maintained.

Beginning at page 15 of the amendment filed December 3, 2007, Applicant has traversed the propriety of maintaining this ground of rejection.

Applicant's arguments have been carefully considered but not found persuasive for the following reasons:

As previously explained, the claims are vague and indefinite because claim 1 recites, "under hybridizing conditions" without defining those conditions that are necessarily used in to practice the process, so as to determine the presence of the PCGEM1 nucleic acid in the biological sample by detecting hybridization between the PCGEM1 nucleic acid and the nucleic acid comprising at least 10 contiguous nucleotides of SEQ ID NO: 1. Formation of the hybrid, which is indicative of the presence in the sample of the PCGEM1 nucleic acid, will or will not occur, or will occur to varying extents, depending upon the conditions under which the PCGEM1 nucleic acid and the nucleic acid comprising at least 10 contiguous nucleotides of SEQ ID NO: 1 are contacted. Were those conditions relatively less "stringent", hybrid formation might occur more promiscuously, such that the nucleic acid comprising at least 10 contiguous nucleotides of SEQ ID NO: 1 might anneal (pair) with a nucleic acid molecule that would not be recognized as "a PCGEM1" nucleic acid; however, were those conditions too stringent, the nucleic acid comprising at least 10 contiguous nucleotides of SEQ ID NO: 1 might not anneal with such recognizable "PCGEM1" nucleic acids. Therefore, the hybridizing conditions effectively define the subject matter that is encompassed by the term "a PCGEM1 nucleic acid", thereby delineating the metes and bounds of the invention, which might be regarded as a method of detecting only nucleic acid molecules comprising the nucleotide

sequence of SEQ ID NO: 1, or which might be considered a method for detecting nucleic acid molecules that are substantially unlike nucleic acid molecules comprising the nucleotide sequence of SEQ ID NO: 1.

At paragraphs [0048] and [0049] of the published application, the specification describes the different conditions that are used to define the nucleic acids that are considered members of the genus of "PCGEM1" nucleic acids to which the claims are directed. In light of this disclosure, it is apparent that the hybridizing conditions that may be used in practicing the claimed invention might vary substantially. Furthermore, it appears that the specification does not provide a standard for ascertaining the requisite degree of stringency that must be used in practicing the claimed invention. Accordingly, the "hybridizing conditions" used in practicing the claimed method may vary, such that those conditions might be highly permissive (e.g., conditions under which even very dissimilar nucleic acid molecules remain hybridized) or highly selective (e.g., conditions under which only fully complementary nucleic acid molecules remain hybridized).

As such, the metes and bounds of the subject matter that Applicant regards as the invention will vary depending upon the specific "hybridizing conditions" that are used to practice the claimed process; accordingly, the claims fail to delineate the metes and bounds of the subject matter that Applicant regards as the invention with the requisite particularity and clarity to permit the artisan to known or determine infringing subject matter, so as to satisfy the requirement set forth under 35 U.S.C. § 112, first paragraph.

16. The following is a quotation of the first paragraph of 35 U.S.C. 112:

> The specification shall contain a written description of the invention, and of the manner and process of making and using it, in such full, clear, concise, and exact terms as to enable any person skilled in the art to which it pertains, or with which it is most nearly connected, to make and use the same and shall set forth the best mode contemplated by the inventor of carrying out his invention.

17. The rejection of claims 22-30 under 35 U.S.C. 112, first paragraph, is maintained. Specifically, since the claimed invention is not supported by either a

specific and substantial asserted utility or a well established utility for the reasons set forth above, one skilled in the art clearly would not know how to use the claimed invention.

At page 13 of the amendment filed December 3, 2007, Applicant has traversed the propriety of maintaining this ground of rejection.

Applicant's arguments have been carefully considered but not found persuasive.

Many of the reasons are set forth above in the paragraphs addressing the failure of the claims to satisfy the utility requirement set forth under 35 U.S.C. § 101.

As previously explained, the elected invention is a method of detecting a PCGEM1 nucleic acid in a biological sample, so the present claims are *not* directed to a method of detecting prostate cancer, which is instead the subject matter of a non-elected invention claimed in this application.

What then is the purpose or objective of practicing the invention, apart from acquisition of scientific data or information? How is it to be used, and to what aim or objective?

Inasmuch as the claimed invention has no requisite objective or purpose that would be deemed specific and substantial, the claimed process appears to have no apparent utility, so the sufficiency of the disclosure to reasonably enable the skilled artisan to practice the invention, or any objective process comprising the invention, as an integral and active step of that process, cannot be assessed.

The claims would merely serve as an invitation to elaborate or develop a useful process comprising the active step of detecting a PCGEM1 nucleic acid in a biological sample. However, as previously explained, any need to further elaborate or develop a utility for the claimed invention would constitute a need to perform undue and/or unreasonable experimentation.

M.P.E.P. § 2164.01 states:

> The standard for determining whether the specification meets the enablement requirement was cast in the Supreme Court decision of *Mineral Separation v. Hyde*, 242 U.S. 261, 270 (1916) which postured the question: is the

> experimentation needed to practice the invention undue or unreasonable? That standard is still the one to be applied. *In re Wands*, 858 F.2d 731, 737, 8 USPQ2d 1400, 1404 (Fed. Cir. 1988). Accordingly, even though the statute does not use the term "undue experimentation," it has been interpreted to require that the claimed invention be enabled so that any person skilled in the art can make and use the invention without undue experimentation. *In re Wands*, 858 F.2d at 737, 8 USPQ2d at 1404 (Fed. Cir. 1988).

There are many factors to be considered when determining whether there is sufficient evidence to support a determination that a disclosure does not satisfy the enablement requirement and whether any necessary experimentation is "undue". These factors, which have been outlined in the Federal Circuit decision of *In re Wands*, 858 F.2d 731, 737, 8 USPQ2d 1400, 1404 (Fed. Cir. 1988), include, but are not limited to, the nature of the invention, the state of the prior art, the relative skill of those in the art, the amount of direction or guidance disclosed in the specification, the presence or absence of working examples, the predictability or unpredictability of the art, the breadth of the claims, and the quantity of experimentation which would be required in order to practice the invention as claimed. See also *Ex parte Forman*, 230 USPQ 546 (BPAI 1986).

18. The rejection of claims 22-30 under 35 U.S.C. 112, first paragraph, as failing to comply with the written description requirement, is maintained. The claim(s) contains subject matter which was not described in the specification in such a way as to reasonably convey to one skilled in the relevant art that the inventor(s), at the time the application was filed, had possession of the claimed invention.

This is a "written description" rejection.

Beginning at page 13 of the amendment filed December 3, 2007, Applicant has traversed the propriety of maintaining this ground of rejection.

Applicant's arguments have been carefully considered but not found persuasive for the following reasons:

As previously noted, the considerations that are made in determining whether a claimed invention is supported by an adequate written description are outlined by the published Guidelines for Examination of Patent Applications

Under the 35 U.S.C. 112, para. 1, ``Written Description'' Requirement (Federal Register; Vol. 66, No. 4, January 5, 2001; hereafter "Guidelines"). A copy of this publication can be viewed or acquired on the Internet at the following address: <http://www.gpoaccess.gov/>.

Guidelines states:

> The claimed invention as a whole may not be adequately described if the claims require an essential or critical feature which is not adequately described in the specification and which is not conventional in the art or known to one of ordinary skill in the art. This problem may arise where an invention is described solely in terms of a method of its making coupled with its function and there is no described or art-recognized correlation or relationship between the structure of the invention and its function. A lack of adequate written description issue also arises if the knowledge and level of skill in the art would not permit one skilled in the art to immediately envisage the product claimed from the disclosed process.

Arguably, even if the disclosure of the invention, as filed, were to provide properly clear and sufficient antecedent basis for the claimed invention, it is aptly noted the Federal Circuit has explained that *in ipsis verbis* support for the claims in the specification does not *per se* establish compliance with the written description requirement:

> Even if a claim is supported by the specification, the language of the specification, to the extent possible, must describe the claimed invention so that one skilled in the art can recognize what is claimed. The appearance of mere indistinct words in a specification or a claim, even an original claim, does not necessarily satisfy that requirement. The disclosure must allow one skilled in the art to visualize or recognize the identity of the subject matter purportedly described. *Eli Lilly*, 119 F.3d at 1568, 43 USPQ2d at 1406.

*Regents of the University of California v. Eli Lilly & Co.*, 119 F.3d 1559, 43 USPQ2d 1398 (Fed. Cir. 1997). *See also:* University of Rochester v. G.D. Searle & Co., 69 USPQ2d 1886 1892 (CA FC 2004).

Thus, even an original claim, which necessarily provides written description for itself, may still not constitute an adequate written description of the claimed subject matter, *which establishes that the inventor was in possession of the invention*.

In this instance, claims 22-30 are directed to a process comprising detecting the presence of a PCGEM1 nucleic acid in a biological sample;

however, the claimed invention achieves no requisite effect, and its use need not have any particular objective or purpose that might be deemed both specific and substantial. Rather, as explained above, the claimed invention is merely *an active step* of which some other undisclosed or unclaimed process is comprised, and which has not been described with the requisite particularity by the instant claims to satisfy the written description requirement set forth under 35 U.S.C. § 112, first paragraph.

Applicant is reminded, "generalized language may not suffice if it does not convey the detailed identity of an invention." *University of Rochester v. G.D. Searle Co.*, 69 USPQ2d 1886 1892 (CAFC 2004).

Because the claimed invention has no objective or purpose, apart from the acquisition of scientific data or information concerning the presence of a PCGEM1 nucleic acid molecule, it is not possible to practice the claimed invention to achieve any one particular effect.

Accordingly, the claims would serve as a mere invitation to the artisan to develop a useful process comprising the active step of detecting a PCGEM1 nucleic acid molecule in a biological sample.

While it might be plausible, given the disclosure, to develop useful processes that achieve different objectives or purposes, which comprise the active step of detecting a PCGEM1 nucleic acid molecule in a biological sample, Applicant is reminded that the written description provision of 35 U.S.C. § 112, first paragraph, is severable from its enablement provision. An adequate written description requires more than a mere statement that it is the invention.

> The purpose of the "written description" requirement is broader than to merely explain how to "make and use"; the applicant must convey with reasonable clarity to those skilled in the art that, as of the filing date sought, he or she was in possession *of the invention*. The invention is, for purposes of the "written description" inquiry, *whatever is now claimed*.

*Vas-Cath, Inc. v. Mahurkar*, 935 F.2d 1555, 1563-64, 19 USPQ2d 1111, 1117 (CAFC 1991). See *Fiers v. Revel*, 25 USPQ2d 1601, 1606 (CAFC 1993); *Amgen Inc. v. Chugai Pharmaceutical Co. Ltd.,* 18 USPQ2d 1016 (CAFC 1991);

*University of Rochester v. G.D. Searle Co.*, 69 USPQ2d 1886 1892 (CAFC 2004).

"Regardless whether a compound is claimed *per se* or a method is claimed that entails the use of the compound, the inventor cannot lay claim to the subject matter unless he can provide a description of the compound sufficient to distinguish infringing compounds from non-infringing compounds, or infringing methods from non-infringing methods". *University of Rochester v. G.D. Searle Co.*, 69 USPQ2d 1886 1984 (CAFC 2004).

As an additional matter, the claims are directed a method of detecting any member of a genus of "PCGEM1 nucleic acid" in any biological sample, such as, and including blood, urine, and prostate tissue. The specification describes this genus of nucleic acid molecules as having widely varying structures, but not necessarily any particular function; see, e.g., paragraphs [0041]-[0056] of the published application. Accordingly, the claims are directed to methods of detecting any of a large plurality of structurally and/or functionally diverse nucleic acids, including but not limited to nucleic acids derived from any of numerous different species of animal, allelic variants, homologs, and nucleic acid molecules that hybridize with probes under varying degrees of stringency. Moreover, according to paragraph [0048] of the published application, the scope of this genus is so broad, as to include any variants of the particularly described molecules that might be derived by mutagenesis.

Notably, despite factual evidence that the PCGEM1 nucleic acid molecule of SEQ ID NO: 1 does not encode a protein[6], the specification paradoxically discloses that the genus of "PCGEM1 nucleic acids" includes nucleic acids that vary from this particular molecule due to the degeneracy of the genetic code (paragraph [0048] of the published application). One cannot envision such nucleic acids, which are "degenerates" of the sequence of SEQ ID NO: 1, if the sequence does not encode a protein.

[6] See, e.g., Srikantan et al. (*supra*); see entire document (e.g., page 12216, column 2).

Given the fact that the members of the genus of "PCGEM1 nucleic acids" may vary so substantially, it is apparent that the specification fails to describe members of the genus as sharing any one particularly identifying structural feature, which might be correlated with any one particularly identifying functional feature that is similarly shared by at least a substantial number of those members. Consequently, the skilled artisan could not immediately envision, recognize, or distinguish at least most member of the genus; and therefore the specification would not reasonably convey to the skilled artisan that Applicant had possession of the claimed invention at the time the application was filed.

Guidelines states, "[p]ossession may be shown in a variety of ways including description of an actual reduction to practice, or by showing the invention was 'ready for patenting' such as by disclosure of drawings or structural chemical formulas that show that the invention was complete, or by describing distinguishing identifying characteristics sufficient to show that the applicant was in possession of the claimed invention" (*Id.* at 1104). Guidelines further states, "[f]or inventions in an unpredictable art, adequate written description of a genus which embraces widely variant species *cannot* be achieved by disclosing only one species within the genus" (Id. at 1106); accordingly, it follows that an adequate written description of a genus cannot be achieved in the absence of a disclosure of at least one species within the genus. Because the claims encompass a genus of variant species, an adequate written description of the claimed invention must include sufficient description of at least a representative number of species by actual reduction to practice, reduction to drawings, or by disclosure of relevant, identifying characteristics sufficient to show that Applicant was in possession of the claimed genus. However, factual evidence of an actual reduction to practice has not been disclosed by Applicant in the specification; nor has Applicant shown the invention was "ready for patenting" by disclosure of drawings or structural chemical formulas that show that the invention was complete; nor has Applicant described distinguishing identifying characteristics

sufficient to show that Applicant had possession of the claimed invention at the time the application was filed.

At page 14, paragraph 2 of the amendment filed December 3, 2007, Applicant has argued that the specification adequately describes the genus of "PCGEM1" nucleic acids that are detected using the claimed process.

In response, as explained, the specification describes the genus of nucleic acid molecules to which the claims are directed as having widely varying structures, and no particular function; see, e.g., paragraphs [0041]-[0056] of the published application. Therefore, the claims are directed to methods of detecting any of a large plurality of structurally and/or functionally diverse nucleic acids, including but not limited to nucleic acids derived from any of numerous different species of animal, allelic variants, homologs, and nucleic acid molecules that hybridize with probes under varying degrees of stringency. Moreover, according to paragraph [0048] of the published application, the scope of this genus is so broad, as to include any variants of the particularly described molecules that might be derived by mutagenesis.

Given the fact that the members of the genus of "PCGEM1 nucleic acids" may vary so substantially, it is apparent that the specification fails to describe members of the genus as sharing any one particularly identifying structural feature, which might be correlated with any one particularly identifying functional feature that is similarly shared by at least a substantial number of those members.

Consequently, the skilled artisan could not immediately envision, recognize, or distinguish at least most member of the genus; and therefore the specification would not reasonably convey to the skilled artisan that Applicant had possession of the claimed invention at the time the application was filed.

***Claim Rejections - 35 USC § 102***

19. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

> A person shall be entitled to a patent unless –
>
> (b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

20. The rejection of claims 22-25 and 27-30 under 35 U.S.C. 102(b), as being anticipated by Srikantan et al. (*Proc. Natl. Acad. Sci. USA.* 2000 Oct 24; **97** (22): 12216-12221) (of record; cited by Applicant), is maintained.

At page 17 of the amendment filed December 3, 2007, Applicant has traversed the propriety of maintaining this ground of rejection.

Applicant's arguments have been carefully considered but not found persuasive for the following reasons:

As previously explained, Srikantan et al. teaches a nucleic acid molecule designated PCGEM1, which was detected in a biological sample comprising intact cells (i.e., prostate tissue or cell lines derived from prostate tissue) by a process comprising contacting the sample with a nucleic acid comprising at least 10 contiguous nucleotides of SEQ ID NO: 1 under hybridizing conditions and detecting hybridization between the nucleic acid comprising at least 10 contiguous nucleotides of SEQ ID NO: 1 and the PCGEM1 nucleic acid in the sample; see entire document (e.g., page 12217, columns 1 and 2). Srikantan et al. teaches this process for detecting a PCGEM1 nucleic acid in a biological sample further comprises amplifying the PCGEM1 nucleic acid before the step of combining; see, e.g., page 12217, columns 1 and 2.

Applicant has argued that Srikantan et al. is not prior art.

In response, as explained above, Applicant has not complied with one or more conditions for receiving the benefit of an earlier filing date under 35 U.S.C. §§ 120. In particular, the disclosure of the prior-filed application, Application No. 09/534,072, fails to provide adequate support or enablement in

the manner provided by the first paragraph of 35 U.S.C. 112 for one or more claims of this application. Furthermore, the claims do not properly benefit under §§ 119 and/or 120 by the earlier filing dates of the priority documents claimed, since those claims are rejected under 35 U.S.C. § 112, first paragraph, as lacking adequate written description and a sufficiently enabling disclosure; and finally, the claims do not properly benefit under §§ 119 and/or 120 by the earlier filing date of the provisional application because the claims are directed to a nucleic acid molecule comprising the nucleotide sequence of SEQ ID NO: 1, which is not described by the provisional application[7].

Accordingly, although Applicant's arguments have been carefully considered, the effective filing date of the claims is deemed the filing date of the instant application, namely March 18, 2004; and therefore, Srikantan et al. is prior art under §102(b).

21. The rejection of claims 22-25 and 27-30 under 35 U.S.C. 102(b), as being anticipated by Dixon et al. (*Cancer Chemother. Pharmocol.* 1999; **43** (Suppl.): S78-S84), as evidenced by Srikantan et al. (*Proc. Natl. Acad. Sci. USA.* 2000 Oct 24; **97** (22): 12216-12221) (of record; cited by Applicant), is maintained.

Beginning at page 17 of the amendment filed December 3, 2007, Applicant has traversed the propriety of maintaining this ground of rejection.

Applicant's arguments have been carefully considered but not found persuasive for the following reasons:

As previously explained, Dixon et al. teaches detecting nucleic acid molecules in a biological sample comprising intact cells (i.e., LnCaP cells, a cell line derived from cancerous prostate tissue) by a process comprising contacting the sample with a nucleic acid comprising at least 10 contiguous nucleotides of SEQ ID NO: 1 under hybridizing conditions and detecting hybridization between the nucleic acid comprising at least 10 contiguous nucleotides of SEQ ID NO: 1

[7] It appears the provisional application describes another nucleotide sequence that differs from the nucleotide sequence of SEQ ID NO: 1 at position 302.

and the PCGEM1 nucleic acid in the sample; see entire document (e.g., page S80, column 1).

Srikantan et al. teaches a PCGEM1 nucleic acid is expressed by LNCaP cells; see entire document (e.g., the abstract). Therefore, as evidenced by Srikantan et al., the RNA isolated from the LNCaP cells described by Dixon et al. comprised a PCGEM1 nucleic acid (i.e., the RNA transcript of *PCGEM1*), which was used to generate a nucleic acid molecule comprising at least 10 contiguous nucleotides of SEQ ID NO: 1 that was used in the process.

As explained above, the effective filing date of the claims is deemed the filing date of the instant application, namely March 18, 2004; and therefore, Dixon et al. is prior art under §102(b).

***Double Patenting***

22. The nonstatutory double patenting rejection is based on a judicially created doctrine grounded in public policy (a policy reflected in the statute) so as to prevent the unjustified or improper timewise extension of the "right to exclude" granted by a patent and to prevent possible harassment by multiple assignees. A nonstatutory obviousness-type double patenting rejection is appropriate where the conflicting claims are not identical, but at least one examined application claim is not patentably distinct from the reference claim(s) because the examined application claim is either anticipated by, or would have been obvious over, the reference claim(s). See, e.g., *In re Berg*, 140 F.3d 1428, 46 USPQ2d 1226 (Fed. Cir. 1998); *In re Goodman*, 11 F.3d 1046, 29 USPQ2d 2010 (Fed. Cir. 1993); *In re Longi*, 759 F.2d 887, 225 USPQ 645 (Fed. Cir. 1985); *In re Van Ornum*, 686 F.2d 937, 214 USPQ 761 (CCPA 1982); *In re Vogel*, 422 F.2d 438, 164 USPQ 619 (CCPA 1970); and *In re Thorington*, 418 F.2d 528, 163 USPQ 644 (CCPA 1969).

A timely filed terminal disclaimer in compliance with 37 CFR 1.321(c) or 1.321(d) may be used to overcome an actual or provisional rejection based on a nonstatutory double patenting ground provided the conflicting application or

patent either is shown to be commonly owned with this application, or claims an invention made as a result of activities undertaken within the scope of a joint research agreement.

Effective January 1, 1994, a registered attorney or agent of record may sign a terminal disclaimer. A terminal disclaimer signed by the assignee must fully comply with 37 CFR 3.73(b).

23. The rejection of claims 22, 23, and 27-29 on the ground of nonstatutory obviousness-type double patenting, as being unpatentable over claims 1-9 of U.S. Patent No. 6,828,429 B1, is maintained.

Beginning at page 17 of the amendment filed December 3, 2007, Applicant has traversed the propriety of maintaining this ground of rejection.

Applicant's arguments have been carefully considered but not found persuasive for the following reasons:

Although the conflicting claims are not identical, they are not patentably distinct from each other for the following reasons:

Claims 1-9 of U.S. Patent No. 6,828,429 B1 are drawn to a nucleic acid molecule that is the transcript of the *PCGEM1* gene. Having this disclosure alone would make obvious the claimed method of detecting a PCGEM1 nucleic acid in a biological sample. Basically, one would have been motivated at the time the invention was made to do so to study the expression pattern of the gene to begin to understand its function.

At page 19 of the amendment Applicant has requested that this issue be held in abeyance; in response to this request, this rejection will be maintained until it is obviated by amendment to the claims in this application or the copending application, or until this provisional rejection is the only remaining ground of rejection over the instant claims. See M.P.E.P. § 804.I.b.

***New Grounds of Rejection***

***Claim Rejections - 35 USC § 112***

24. Claims 22-30 are rejected under 35 U.S.C. 112, second paragraph, as failing to set forth the subject matter that Applicant regards as the invention. Evidence that claims 22-30 fail to correspond in scope with that which Applicant regards as the invention can be found in the reply filed December 3, 2007. In that paper, Applicant has stated the claims are directed to a method of detecting a marker for diseases associated with the 2q32 region of chromosome 2 (page 15, paragraph 2, and this statement indicates that the invention is different from what is defined in the claims because the claims are not directed to such subject matter; rather the claims are directed to a process for detecting a PCGEM1 nucleic acid in a biological sample comprising intact cells.

25. Claims 22-30 are rejected under 35 U.S.C. 112, first paragraph, as failing to comply with the written description requirement. The claim(s) contains subject matter which was not described in the specification in such a way as to reasonably convey to one skilled in the relevant art that the inventor(s), at the time the application was filed, had possession of the claimed invention.

This is a “new matter” rejection.

Claim 22 recites, "a biological sample comprising intact cells". Depending upon how such a limitation is read, the claim might be interpreted to encompass subject matter that is not adequately supported by the specification, including the claims, as originally filed.

At page 14 of the amendment filed December 3, 2007, Applicant has remarked that claim 22 has been amended to recite, "comprising intact cells" to obviate an issue raised in the preceding Office action.

As pointed out in the second paragraph at page 25 of the Office action mailed June 4, 2007, evidence of record indicates that the PCGEM1 nucleic acid of SEQ ID NO: 1 is expressed by androgen receptor-positive prostate cells, but none indicates that the nucleic acid, or any variant thereof, is translocated

outside the prostate, such that it might be detected in biological samples, such as the blood or urine. Yet, the claims 22-24 and 26-30, as earlier presented, were directed to a method of detecting a PCGEM1 nucleic acid in any biological sample, or more particularly in blood or urine, but not necessarily prostate tissue.

As explained, having not described the presence of any one species of PCGEM1 nucleic acid in the blood or urine, and because nucleic acid molecules are not generally translocated, or stable outside the cell, the specification would not reasonably convey to the skilled artisan that Applicant had possession of the claimed invention at the time the application was filed.

Because Applicant has amended claim 22 to recite, “comprising intact cells", it is not apparent that the claims are not directed to a method for detecting a "naked" PCGEM1 nucleic acid in a biological sample. Instead it would seem that the nucleic acid to be detected using the claimed process must be contained within intact cells of which the biological sample is necessarily comprised. In light of claim 23, for example, it would be appreciated that the process could comprise a step by which the nucleic acids contained in those cells is isolated, so as to enable the recited step of amplifying the PCGEM1 nucleic acid before combining the sample with the nucleic acid comprising at least 10 contiguous nucleotides of SEQ ID NO: 1.

Claims, however, should be given the broadest, reasonable interpretation that is both consistent with the specification and with that which would be understood by the artisan of skill in the relevant arts.

As such, the claims should be read as encompassing a process by which the combining and detecting steps are performed within the intact cells of which the biological sample is necessarily comprised.

It is not apparent where in the specification, including the claims, as originally filed, written support is found for the language of the claims, if broadly, but reasonably interpreted in this manner.

The specification describes the use of *in situ* hybridization to map the location of *PCGEM1* on chromosome 2q to specific region 2q32, as described,

e.g., at paragraph [0111] of the published application, but this analysis was performed using isolated chromosomes.

Then, although the specification further describes the use of *in situ* hybridization to measure and compare the level of expression of the gene in embedded tissue specimens comprising "intact" cells, the claims are not so limited, since the claims are more broadly directed to any process comprising detecting a PCGEM1 nucleic acid in a biological sample comprising intact cells, which comprises combining the sample with a nucleic acid comprising at least 10 contiguous nucleotides of SEQ ID NO: 1 and detecting hybridization between the PCGEM1 nucleic acid in the sample and the nucleic acid comprising at least 10 contiguous nucleotides of SEQ ID NO: 1.

The claims might be construed numerous different processes, which are only similar in that they share the two active steps of the claimed process, namely the steps of combining and detecting. Few of such processes are described with clarity and particularity however.

For example, the claims might be construed to encompass a method for detecting PCGEM1 nucleic acid in a biological sample comprising intact cells by flow cytometry after mediating delivery of the nucleic acid comprising at least 10 contiguous nucleotides of SEQ ID NO: 1 to the inside of the cells, as might be accomplished by causing the cells to become permeable to the nucleic acid; yet, the specification fails to describe such a method.

In fact, it is aptly noted that the term “intact [or whole] cells” does not appear in the specification, as filed; so, any support must necessarily be gleaned implicitly from any pertinent disclosures that might be made in this application.

Was the breadth of the claims substantially more limited, and more reasonably commensurate with the breadth of pertinent disclosures, perhaps there would not be an issue.

However, as that is not the case, it is for these reasons that the amendment has introduced new concepts that are not adequately supported by the specification, including the claims, as originally filed, and which therefore

violate the written description requirement set forth under 35 U.S.C. § 112, first paragraph.

This position is more contradicted by the fact that the claims, as previously presented, lack antecedent basis in the specification, as filed. This issue has been discussed at length, but Applicant is reminded that in accordance with 37 CFR 1.78, the claim or claims must conform to the invention as set forth in the remainder of the specification and the terms and phrases used in the claims must find clear support or antecedent basis in the description so that the meaning of the terms in the claims may be ascertainable by reference to the description.

This is necessary in order to insure certainty in construing the claims in the light of the specification, *Ex parte Kotler,* 1901 C.D. 62, 95 O.G. 2684 (Comm'r Pat. 1901). See 37 CFR 1.75, M.P.E.P. § 608.01(i) and § 1302.01.

If the specification, as filed, does not provide clear and sufficient antecedent basis for the claims, as previously presented, then, how might that same disclosure provide clear and sufficient written support for the variant of that process, which is now the subject matter of the instant claims? It would not.

This issue might be remedied if Applicant were to point to specific disclosures in the specification, as originally filed, which are believed to provide the necessary support for the language of the present claims; otherwise, Applicant should cancel the new matter.

***Conclusion***

26. No claim is allowed.

27. As previously noted, the prior art made of record and not relied upon is considered pertinent to Applicant's disclosure. Srikantan et al. (*Proceedings of the American Association for Cancer Research Annual Meeting*, 1999 Mar; 40: 37) (of record; cited by Applicant) teaches the detection of a PCGEM1 nucleic acid in a biological sample.

Additional prior art, now made of record, but not relied upon, is also considered pertinent. U.S. Patent Application Publication 2001/0053519 A1 teaches a process for detecting nucleic acids in biological samples, said process comprising contacting the sample with a polynucleotide comprising at least 10 contiguous nucleotides of the polynucleotide sequence set forth as SEQ ID NO: 1; more particularly, U.S. Patent Application Publication 2001/0053519 A1 teaches the use of "n-mer arrays" comprising a solid support to which are attached all possible nucleic acid sequences of a given length, such as, and including a 10-mer array; see entire document (e.g., page 10, paragraph [0101]).

28. Applicant's amendment necessitated the new ground(s) of rejection presented in this Office action. Accordingly, **THIS ACTION IS MADE FINAL**. See MPEP § 706.07(a). Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the date of this final action.

29. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Stephen L. Rawlings, Ph.D. whose telephone number is (571) 272-0836. The examiner can normally be reached on Monday-Friday, 8:30AM-5:00PM.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Larry Helms, Ph.D. can be reached on (571) 272-0832.

The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see http://pair-direct.uspto.gov. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

/Stephen L. Rawlings/
Stephen L. Rawlings, Ph.D.
Primary Examiner, Art Unit 1643

slr
February 22, 2008